0059836

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

APR 16 2002

02-GWVZ-0020

Ms. Jane Hedges
Perimeter Areas Section Manager
Nuclear Waste Program
State of Washington
Department of Ecology
1315 W. Fourth Avenue
Kennewick, Washington 99336

July - Dec 2001

Dear Ms. Hedges:

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) FINAL STATUS/ CORRECTIVE ACTION SEMIANNUAL REPORTS

Please find attached the Semiannual reports for two RCRA sites where groundwater is monitored under Final Status/Corrective Action programs: the 183-H Solar Evaporation Basins (Attachment 1) and the 300 Area Process Trenches (Attachment 2). These reports are submitted to fulfill the requirements of WAC 73-303-645(11)(g).

If you want to discuss this matter further or require additional information, please contact Marvin J. Furman at (509) 373-9630.

Sincerely,

John G. Morse, Program Manager
Groundwater/Vadose Zone Project

GWVZ:MJF

Attachments

cc w/o attachs:
R. L. Biggerstaff, BHI
J. V. Borghese, CHI
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Results of Groundwater Monitoring for RCRA Corrective Action
at the 183-H Solar Evaporation Basins
July through December 2001

M.J. Hartman
March 2002

INTRODUCTION

The 183-H solar evaporation basins were located in the 100 H Area of the Hanford Site, and have been demolished and backfilled. The site is regulated under the *Resource Conservation and Recovery Act of 1976* (RCRA). The waste discharged to the basins originated in the 300 Area fuel fabrication facility and included solutions of chromic, hydrofluoric, nitric, and sulfuric acids that had been neutralized. The waste solutions contained various metallic and radioactive constituents (e.g., chromium, technetium-99, uranium). Between 1985 and 1996, remaining waste was removed, the facility was demolished, and the underlying contaminated soil was removed and replaced with clean fill.

This is the fifth of a series of reports on corrective action monitoring at the 183-H Solar Evaporation Basins. It addresses requirement of WAC 173-303-645(11)(g) to report twice each year on the effectiveness of the corrective action program. This report covers the period from July through December 2001.

The Washington State Department of Ecology issued a RCRA Permit for the Hanford Site in 1994 (Ecology 1994). The 183-H Basins were included in Part VI of the Permit, which contains requirements specifically applicable to those treatment, storage, and disposal units that are undergoing closure. A final-status, compliance monitoring program was proposed in 1995 (Hartman and Chou, 1995) to comply with the groundwater monitoring requirements of WAC 173-303-645.

The first sample set collected during compliance monitoring showed that downgradient concentrations of the contaminants of concern exceeded concentration limits defined in the monitoring plan. The regulations require corrective action activities to reduce contaminant concentrations in groundwater. The Postclosure Plan, which was incorporated into Part V of the Hanford Site RCRA Permit in February 1998, deferred corrective action to the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) interim action for the 100-HR-3 Operable Unit. The Postclosure Plan also required monitoring to be conducted as described in the revised RCRA groundwater monitoring plan (Hartman 1997).

The objective of RCRA groundwater monitoring during the period of interim remediation is to track trends in chromium, nitrate, uranium, technetium-99, and fluoride. DOE, the regulators, and members of the public will determine methods for final

remediation of 100-H Area groundwater some time in the future. At that time, the RCRA monitoring program will be revised to meet the requirements of final remedial measures.

INTERIM REMEDIAL MEASURE

The interim remedial measure applies to the 100-HR-3 groundwater operable unit, which is under the authority of a CERCLA record of decision. Groundwater is pumped from five extraction wells, located west, north, and east of the 183-H Basins (Figure 1). The effluent is treated to remove chromium and injected back into the aquifer in upgradient wells. The objective of the interim remedial measure is to reduce the amount of chromium entering the Columbia River, where it is a potential hazard to the ecosystem.

Groundwater is sampled to monitor the effectiveness of the interim remedial measure and to monitor the entire 100-HR-3 Operable Unit (DOE-RL 1997b). This CERCLA monitoring is coordinated with RCRA monitoring.

– The pump-and-treat system may be shut down when concentrations of hexavalent chromium are below 22 µg/L in wells specified in the record of decision, and data indicate that the concentration will remain below that value. The system may also be shut down if the system proves ineffective or if a better treatment technique is found. The most recent operable unit report, covering calendar year 2001, concluded that chromium concentrations in groundwater were declining but are not consistently below 22 µg/L in compliance wells (DOE-RL 2002).

RCRA GROUNDWATER MONITORING PROGRAM

Four wells located in the 183-H chromium plume are monitored for RCRA requirements during pump-and-treat activities (see Figure 1). Three of the wells are completed at the top of the uppermost aquifer (Hanford formation): wells 199-H4-7 and 199-H4-12A are extraction wells, and well 199-H4-3 is a monitoring well that has historically shown the highest levels of chromium, nitrate, technetium-99, and uranium from the 183-H Basins. Well 199-H4-12C is located adjacent to 199-H4-12A and is completed in a confined aquifer in the Ringold Formation. This well consistently has elevated concentrations of chromium, though the contaminant source is unknown. This well is monitored to help determine whether pumping the shallow aquifer affects chromium concentrations deeper in the Ringold sediments.

Wells are sampled annually for RCRA, generally in November. This is typically a period when river stage is low and the samples reflect nearly pure groundwater instead of a mixture of groundwater and river water held in bank storage. Therefore, contaminant concentrations in November are usually among the highest of the year.

Hartman and Chou (1995) listed the following concentration limits for the 183-H Basins constituents of concern:

- Chromium: 122 µg/L. This limit was derived based on background concentrations from upgradient wells 199-H3-2A and 199-H4-6, which were formerly monitored for RCRA.

- Nitrate: 45 mg/L (as NO_3). Based on final maximum contaminant level (56 FR, January 30, 1991).

- Uranium: 20 µg/L. Based on EPA proposed changes to 40 CFR 141[1].

- Technetium-99: 900 pCi/L. Interim drinking-water standard, based on national primary drinking water standards (40 CFR 141).

Hartman and Chou (1995) did not identify fluoride as a groundwater contaminant of concern, but it was detected in the vadose zone beneath the former basins and so it is monitored under RCRA (DOE-RL, 1997a).

During the period of compliance monitoring (1995-1996), contaminant concentrations from compliance wells were compared to the concentration limits listed above to determine whether corrective action was necessary as required under WAC 173-303-645. Because the CERCLA pump-and-treat system is not the final corrective action for the site, the current objective of RCRA monitoring is simply to track trends, not to determine the effectiveness of the corrective action (Hartman 1997). After completion of the interim remedial measure and future phases of corrective action, the RCRA monitoring program will be revised and contaminant concentrations will be compared to applicable standards to determine whether the final corrective action was successful.

CONTAMINANT TRENDS

This section discusses concentrations of chromium, fluoride, nitrate, technetium-99, and uranium in groundwater. The four wells in the RCRA network were sampled in November 2001. The RCRA network includes two of the pump-and-treat extraction wells, which also were sampled for CERCLA objectives during the reporting period. All available data are presented in Table 1 and pertinent results are discussed below.

Concentrations of groundwater contaminants fluctuate seasonally, especially in wells 199-H4-3 and 199-H4-12A. These two wells are directly in the contaminant plume from the 183-H basins and are relatively near the Columbia River. Changing river stage causes the water table to rise and fall. In general, a low water table is associated with higher concentrations of contaminants. Seasonal variations in the water table also cause changes in the direction of groundwater flow. Since 1998, overall contaminant trends have been downward.

[1] EPA recently put forth a new limit of 30 µg/L for uranium. This report continues to compare to the old standard of 20 µg/L because that was the limit stipulated in the groundwater monitoring plan (Hartman and Chou 1995).

Chromium

Chromium data include two types of analyses: total chromium and hexavalent chromium. Total chromium may include the relatively insoluble, nontoxic trivalent chromium and the soluble, more toxic hexavalent form. Filtered samples represent dissolved chromium, which is assumed to be hexavalent. Samples analyzed for hexavalent chromium may be filtered or unfiltered. Table 1 indicates which types of analyses were run and which samples were filtered.

Dissolved chromium concentrations continued previous trends in all four wells (Figure 2). Concentrations in extraction well 199-H4-12A are variable because the well is close to the Columbia River and the water table fluctuates. The highest value of dissolved chromium in this well during the reporting period was 67 µg/L, which is the highest in any of the shallow RCRA wells, but is below the concentration limit for 183-H (122 µg/L) and below the maximum contaminant level (100 µg/L). Well 199-H4-3, directly downgradient of the 183-H basins, detected dissolved chromium at concentrations ranging from 34 to 51 µg/L, the lowest values since 1992. Concentrations in extraction well 199-H4-7 have been declining gradually for the past 10 years, except for a peak in 1998. This declining trend continued during the reporting period.

Well 199-H4-12C is completed in a confined aquifer in the Ringold Formation. Chromium concentrations were higher than in any of the shallower wells during this reporting period, which is typical for recent years. Values ranged from 137 to 149 µg/L, exceeding the maximum contaminant level. Concentrations have been declining since 1996. The source of the chromium in this deeper aquifer is unknown, but is probably not the 183-H basins because concentrations of nitrate, technetium-99, and uranium are low.

Fluoride

Fluoride concentrations were in the hundreds of µg/L during the reporting period, typical values for the past four years (Figure 3). These levels are about the same is in wells that are upgradient of the 183-H basins, and are all far below the 4,000 µg/L maximum contaminant level.

Nitrate

Nitrate concentrations were below the maximum contaminant level (45 mg/L) in most of the samples collected this reporting period (Figure 4). The only exception was a value of 87 mg/L in well 199-H4-3. This was the lowest nitrate value in this well since 1992. Concentrations are variable in well 199-H4-12A; the highest concentration during the reporting period was 44 mg/L, just below the maximum contaminant level. A spike in nitrate in well 199-H4-7 in July 1997 appears to be related to similar increases in uranium and technetium-99. The fact that spikes occurred in all three of these contaminants indicates they were probably not erroneous values, but the cause of the brief peak is unknown. Nitrate concentrations in well 199-H4-7 were slightly below the

maximum contaminant level during the reporting period. Deeper well 199-H4-12C continued to detect low concentrations of nitrate (5 mg/L).

Technetium-99

All four wells showed low technetium-99 concentrations in November 2001 (Figure 5; see Table 1). The maximum concentration was 243 pCi/L in well 199-H4-3. This well has exceeded the 900 pCi/L drinking water standard in the past, but has been below that level for three of the past four sampling events. Concentrations in the other wells were even lower in November 2001, ranging from undetected to 66 pCi/L.

Uranium

Trends in uranium concentrations are very similar to technetium-99 in all four RCRA monitoring wells (Figure 6). Values ranged from 1 µg/L in deep well 199-H4-12C to 22 µg/L in well 199-H4-3. The value for well 199-H4-3 slightly exceeded the concentration limit of 20 µg/L.

CONCLUSIONS

The current objective of RCRA monitoring is simply to track trends, not to determine the effectiveness of the interim remedial action. After completion of the interim remedial measure and future phases of corrective action, the RCRA monitoring program will be revised and contaminant concentrations will be compared to applicable standards to determine whether the final corrective action was successful.

Concentrations of contamination from the former 183-H basins continued to be highest in well 199-H4-3, immediately downgradient of the basins, during the period July through December 2001. Specific observations include the following:

- Chromium concentrations continued their general decline in wells 199-H4-3, 199-H4-7, and 199-H4-12C. Well 199-H4-12A has a variable trend because of water table fluctuations.

- Nitrate, technetium-99, and uranium trends were similar to one another. Trends are variable in extraction well 199-H4-12A. Trends in the other wells are steady or declining.

- Fluoride concentrations downgradient of the basins were not elevated compared to upgradient concentrations.

The four RCRA wells will be sampled for all of the constituents of interest in November 2002. The CERCLA program samples the extraction wells quarterly and wells 199-H4-3 and 199-H4-12C semiannually for selected constituents. The current RCRA monitoring plan (Hartman 1997) remains adequate for the objective of tracking trends during the period of the interim remedial action.

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Hartman, M.J. and C.J. Chou, 1995, *Groundwater Monitoring Plan for the 183-H Solar Evaporation Basins*, WHC-SD-EN-AP-180, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Hartman, M.J., 1997. *Groundwater Monitoring Plan for the 183-H Solar Evaporation Basins*, PNNL-11573, Pacific Northwest National Laboratory, Richland, Washington.

Table 1. Groundwater Monitoring Data for 183-H Basins, July-December 2001.

Well	Date	Result	Filtered	Qualifier	Chromium analysis
			Chromium, µg/L		
199-H4-12A	11/7/2001	47.1	Y		ICP metals (total chromium)
199-H4-12A	11/12/2001	67	N		Hexavalent
199-H4-12C	11/2/2001	149	N		ICP metals (total chromium)
199-H4-12C	11/2/2001	138	Y		ICP metals (total chromium)
199-H4-12C	7/2/2001	140	Y		Hexavalent
199-H4-12C	11/2/2001	137	Y		Hexavalent
199-H4-3	11/5/2001	61.2	N		ICP metals (total chromium)
199-H4-3	11/5/2001	35.7	Y		ICP metals (total chromium)
199-H4-3	7/9/2001	51	Y		Hexavalent
199-H4-3	11/5/2001	41	Y		Hexavalent
199-H4-7	11/7/2001	16.9	Y		ICP metals (total chromium)
199-H4-7	8/6/2001	24	N		Hexavalent
199-H4-7	11/12/2001	29	N		Hexavalent
			Fluoride, µg/L		
199-H4-12A	11/7/2001	190	N		
199-H4-12C	11/2/2001	500	N	U	
199-H4-3	11/5/2001	500	N	U	
199-H4-7	11/7/2001	250	N		
			Nitrate, mg/L		
199-H4-12A	11/7/2001	33.2	N	D	
199-H4-12A	11/12/2001	44	N		
199-H4-12C	11/2/2001	5.28	N		
199-H4-3	11/5/2001	86.7	N		
199-H4-7	11/7/2001	42.1	N	D	
199-H4-7	11/12/2001	43.3	N		
			Technetium-99, pCi/L		
199-H4-12A	11/7/2001	25.7	N		
199-H4-12A	11/12/2001	66.2	N		
199-H4-12C	11/2/2001	4.26	N	U	
199-H4-3	11/5/2001	243	N		
199-H4-7	11/7/2001	9.93	N	U	
199-H4-7	11/12/2001	9.95	N	U	
			Uranium, µg/L		
199-H4-12A	11/7/2001	4.66	N		
199-H4-12A	11/12/2001	11.4	N		
199-H4-12C	11/2/2001	1.25	N		
199-H4-3	11/5/2001	21.5	N		
199-H4-7	11/7/2001	2.29	N		
199-H4-7	11/12/2001	2.9	N		

D = Sample diluted for analysis. Result corrected for dilution.
U = Analyte analyzed for but not detected above statistically adjusted method detection limit or instrument detection limit.

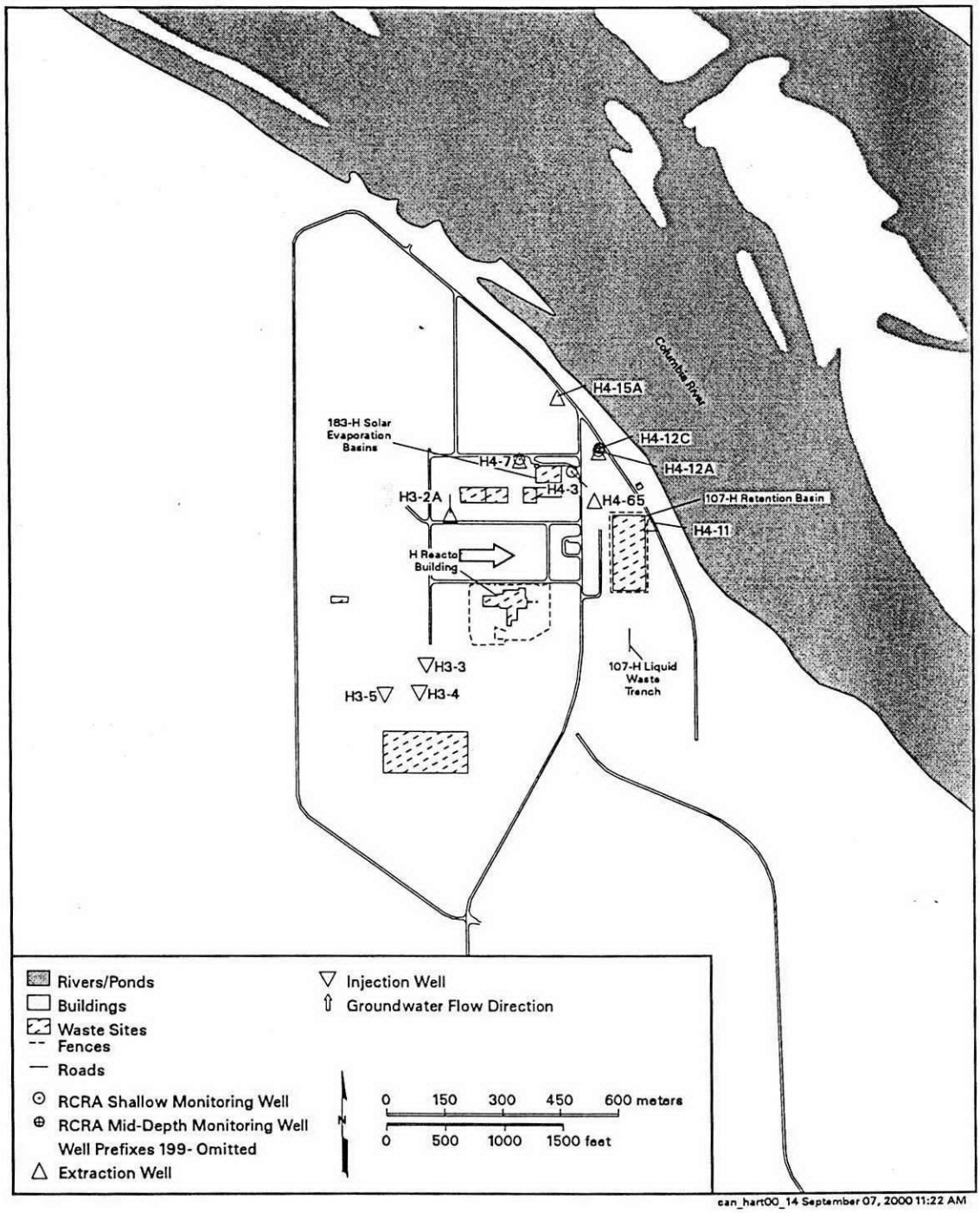

Figure 1. Monitoring Well Locations for 183-H Solar Evaporation Basins.

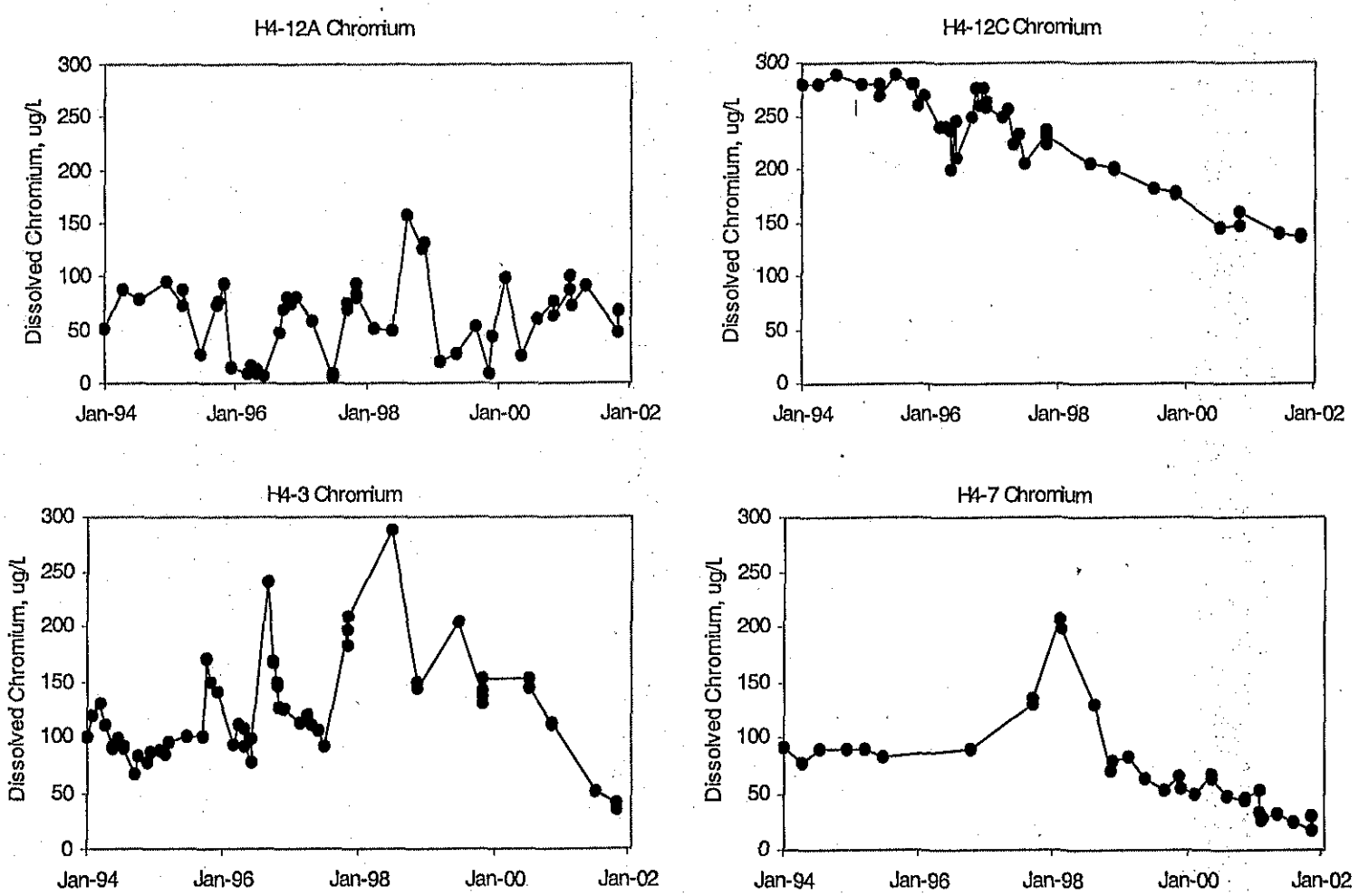

Figure 2. Dissolved Chromium in 183-H Basins Wells.

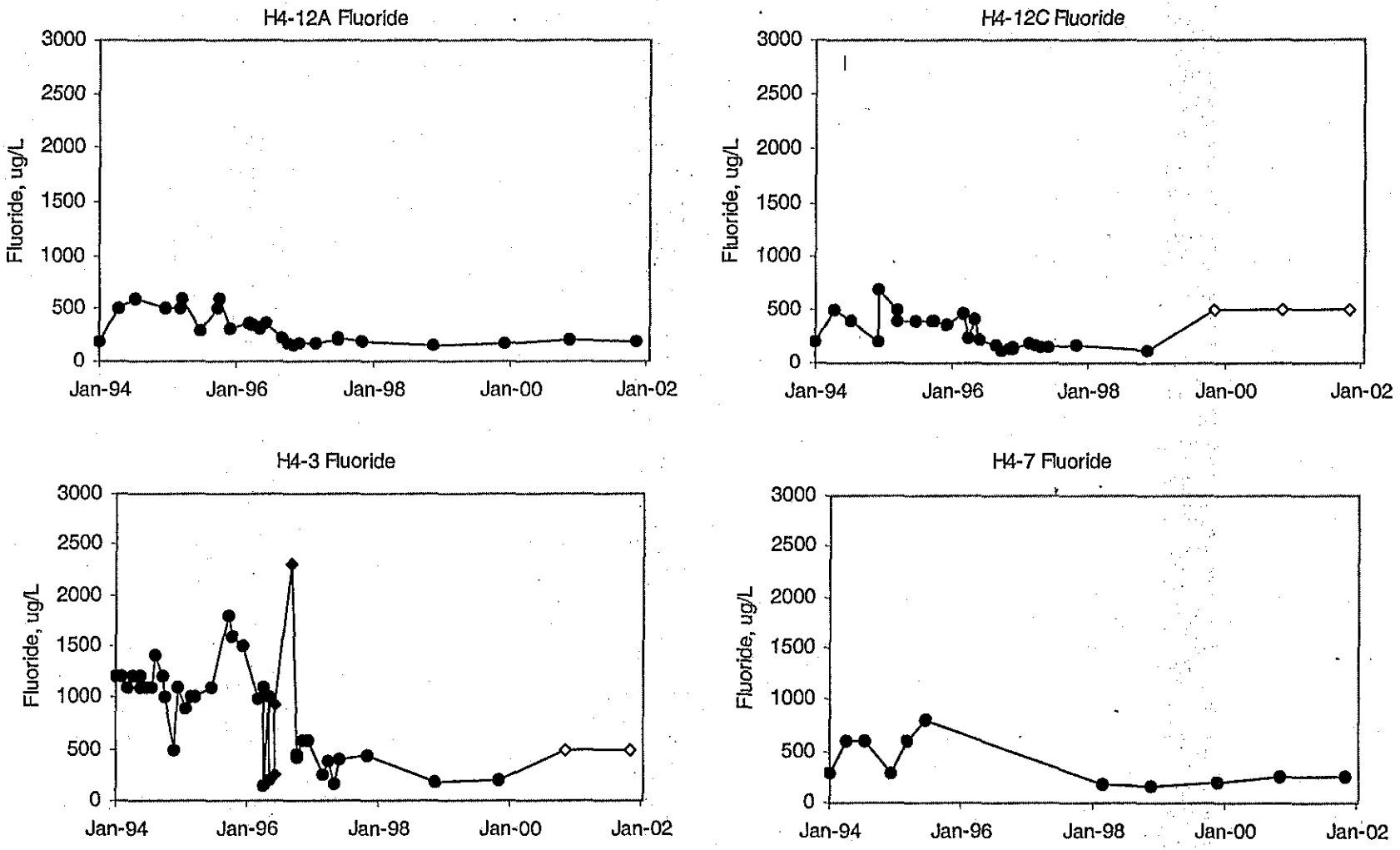

Figure 3. Fluoride in 183-H Basins Wells.

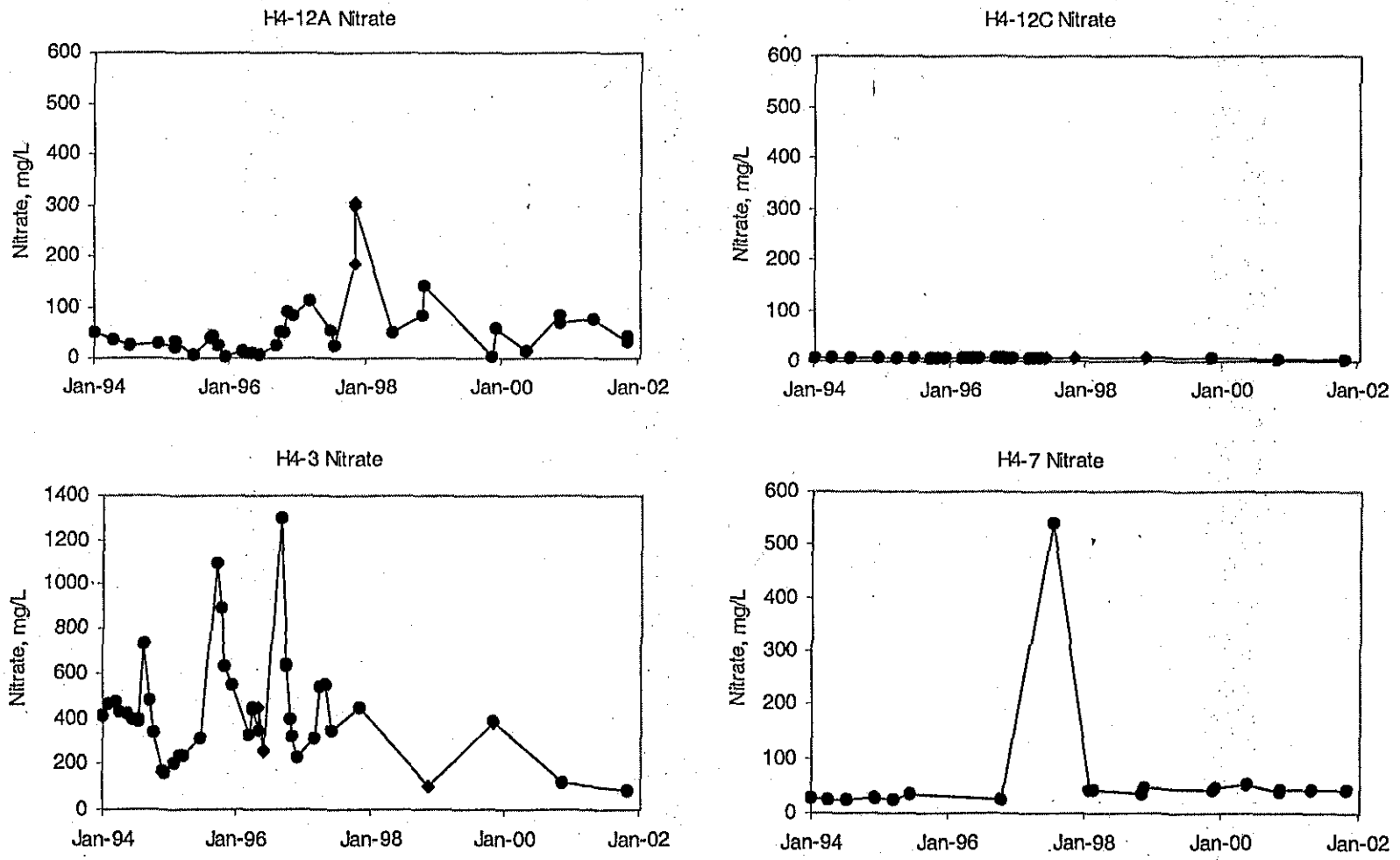

Figure 4. Nitrate in 183-H Basins Wells.

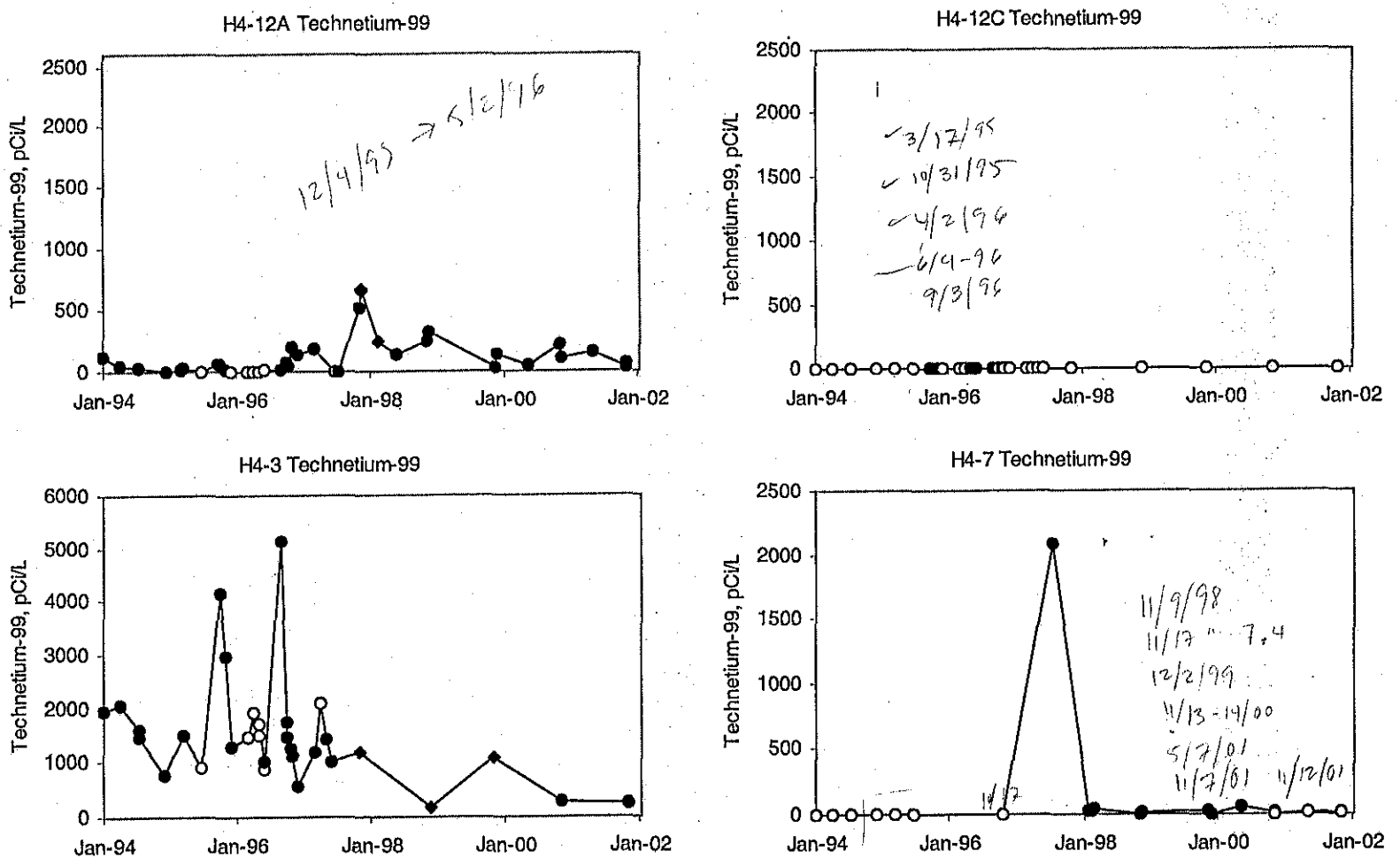

Figure 5. Technetium-99 in 183-H Basins Wells.

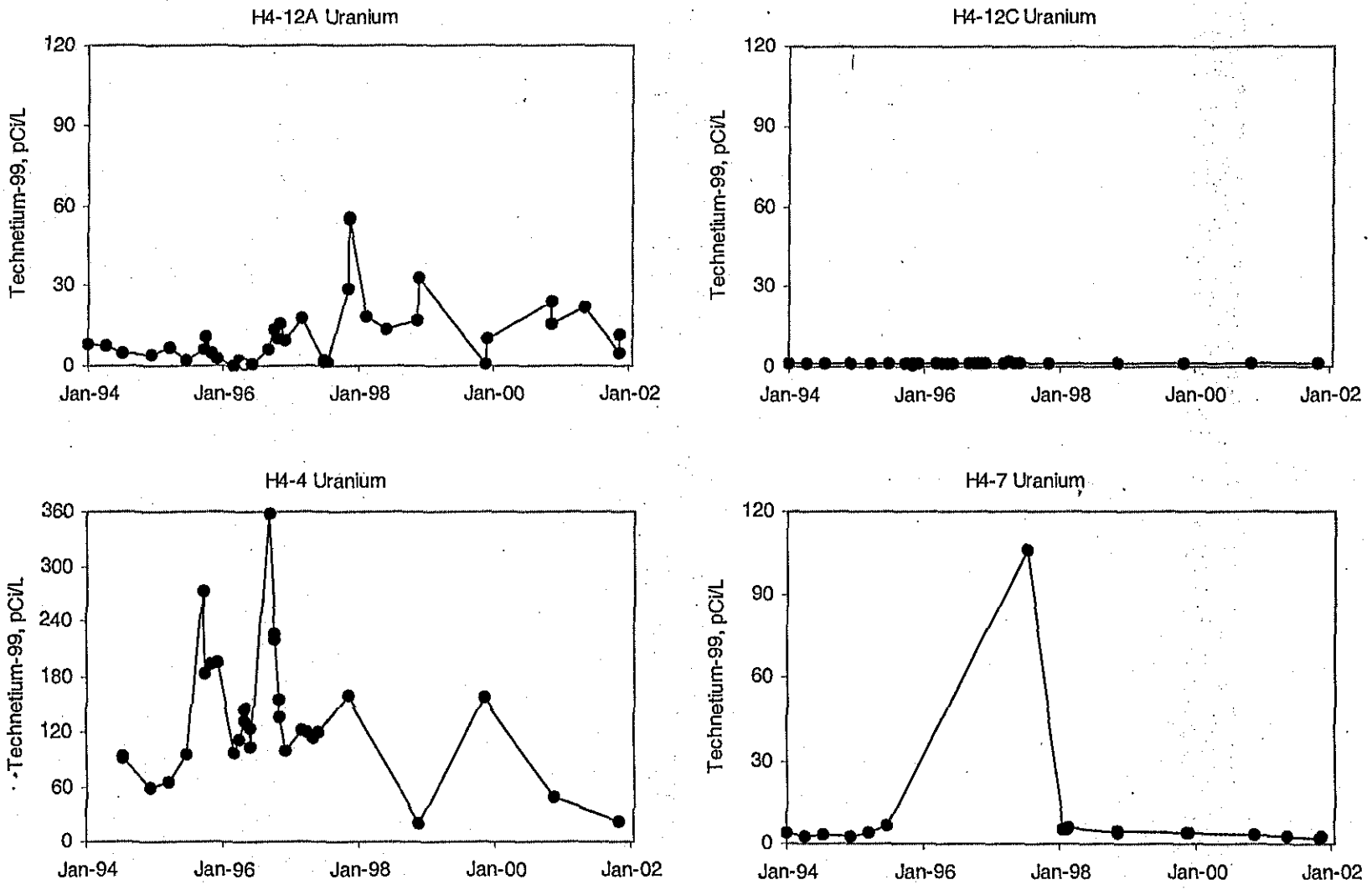

Figure 6. Uranium in 183-H Basins Wells.

Results of Groundwater Monitoring for RCRA Corrective Action
At the 300 Area Process Trenches
July through December 2001

J.W. Lindberg
April, 2002

INTRODUCTION

The 300 Area Process Trenches (316-5), a RCRA unit, operated from 1975 through 1994 and received effluent discharges of dangerous mixed waste from fuel fabrication laboratories in the 300 Area. This is the fifth of a series of semiannual groundwater-monitoring reports on the corrective action program at the 300 Area Process Trenches (300 APT). It fulfills requirements of WAC 173-303-645(11)(g) to report on the effectiveness of the corrective action program. Results of monitoring have been reported previously in groundwater annual reports (e.g., Hartman et al. 2001; Hartman et al. 2002). This report covers groundwater-monitoring data collected during the period from July through December 2001.

BACKGROUND

The objective of groundwater monitoring during the corrective action period is to demonstrate the effectiveness of the corrective action program by examining the trend of the constituents of interest (uranium, cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene) to confirm that they are attenuating naturally, as expected by the CERCLA record of decision for the 300-FF-5 Operable Unit (ROD 1996). During the reporting period the existing groundwater-monitoring plan (Lindberg et al. 1995) was rewritten to update the discussions on hydrogeology and conceptual model, present a revised monitoring well network to include 11 wells (Figure 1) rather than the previous eight, and change the statistical approach to the control chart method that tracks the contamination trends better than the previous plan with reduced costs. The rewritten plan is Lindberg and Chou (2001).

The 300 APT were closed under a modified closure/post-closure plan (DOE 1994) and continue to be in corrective action because of waste left in place and groundwater contamination that continues to exceed drinking water standards. Groundwater monitoring will continue for 30 years during the post-closure monitoring period. The new groundwater-monitoring plan (Lindberg and Chou 2001) was submitted with Modification F of the Hanford Site RCRA Permit (Ecology 1994) and will be available for public comment in May 2002. The next revision (Rev. 8) of the RCRA Permit will most likely be granted by Ecology in July 2002. In the meantime the new groundwater-monitoring plan is in effect under a temporary authorization that was issued by Ecology on February 6, 2002, and will continue until June 9, 2002. An automatic extension (for up to 6 months) will be granted on June 9 that will continue the temporary extension until the expected date that Ecology grants the next revision of the RCRA Permit (July 2002).

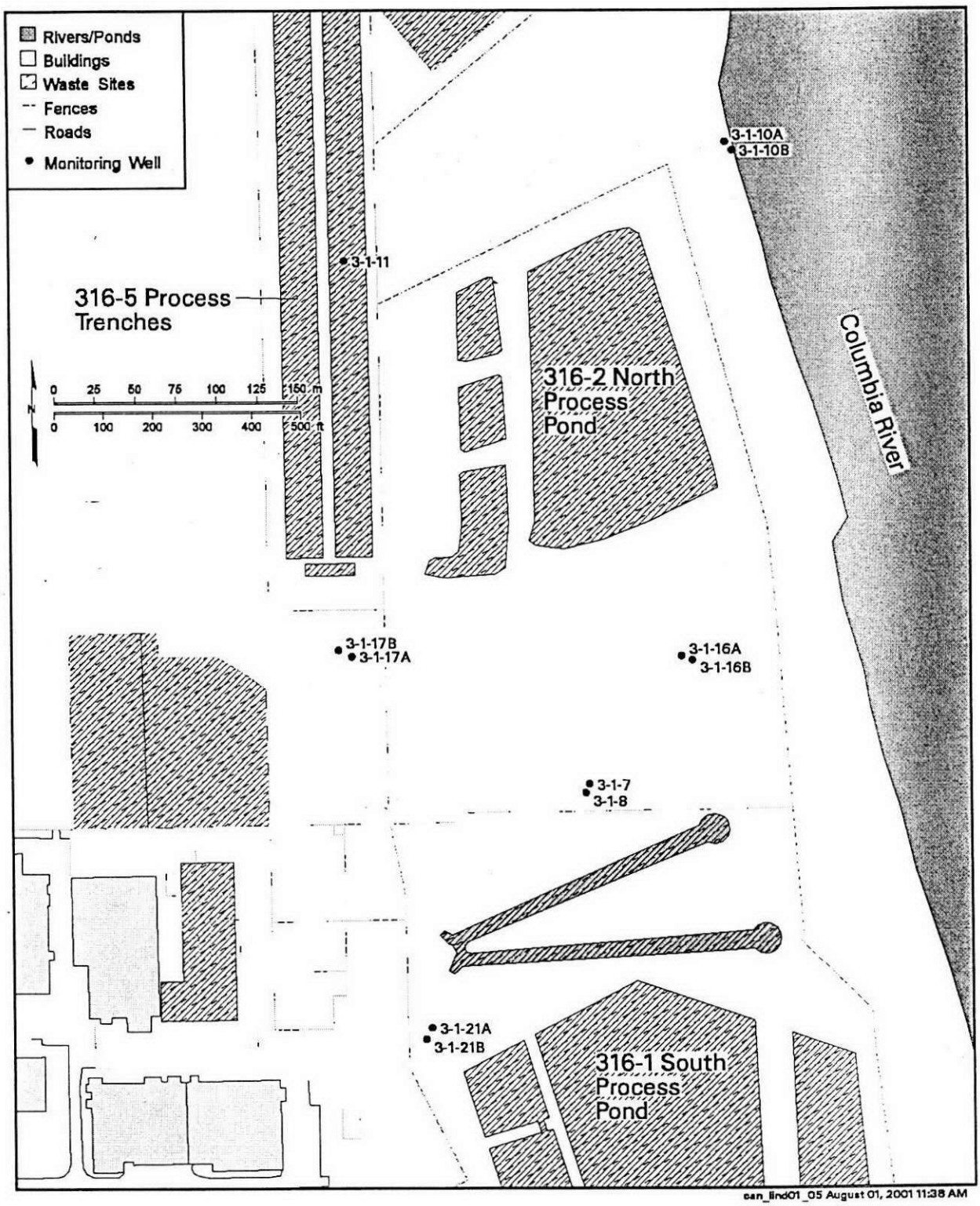

Figure 1. Locations of Wells in the 300 Area Process Trenches Monitoring Network (from PNNL-13645).

The most significant difference between the old and new groundwater-monitoring plans is the change in statistical approach. The new statistical approach is a control chart method that uses a single observation (sample) from each well during any monitoring event rather than four time-independent samples specified by the old plan. The method monitors each well in the network individually and yet maintains desired site-wide false-positive and false-negative rates. Also, each well showing an exceedance of one of the constituents of interest (currently 5 of the 11 network wells) is sampled quarterly to better follow the trends of contaminant concentration. The other wells in the network will continue to be sampled semiannually.

RCRA GROUNDWATER-MONITORING PROGRAM

The revised groundwater-monitoring network for the 300 APT includes five well pairs plus one additional well (399-1-11) at the 300 APT that is screened in the upper portion of the unconfined aquifer (Figure 1). Each of the well pairs has one shallow and one deep well. The shallow wells are screened at the water table, and the deep wells are screened at the bottom of the local unconfined aquifer (above the lacustrine and overbank deposits of the Ringold Formation lower mud unit).

The wells are sampled for the constituents of interest, including total uranium (chemical), and the volatile organic compounds cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene. The concentration limits (MCLs), as specified in Lindberg and Chou (2001) are shown in Table 1 along with current method detection levels (MDLs).

Table 1. Concentration Limits and Method Detection Limits of 300 APT COCs.

COC	MCL	MDL
Uranium	20 µg/L*	0.1 µg/L
Cis-1,2-dichloroethene	70 µg/L	0.5 µg/L
Trichloroethene	5 µg/L	0.31 µg/L
Tetrachloroethene	5 µg/L	0.36 µg/L

*The MCL for uranium has been raised to 30 µg/L effective Dec. 8, 2003 (40 CFR Part 9, 141, and 142) (U.S. EPA 2000).

The sampling schedule is based on the concentrations of constituents of interest reported at each well. As mentioned in the Background Section, wells with constituents exceeding drinking water standards are sampled quarterly. The rest are sampled semiannually. Table 2 lists the wells in the 300 APT network, their sampling frequency, and if sampled quarterly, the constituents of interest that exceed drinking water standards.

Table 2. Sampling Schedule for Well in the 300 APT Network

Well	Sampling Frequency	Constituent of Interest Exceeding MCLs
399-1-7	Quarterly	Uranium
399-1-8	Semiannual	
399-1-10A	Quarterly	Uranium
399-1-10B	Semiannually	
399-1-11	Quarterly**	Uranium**
399-1-16A	Quarterly	Uranium
399-1-16B	Quarterly	Cis-1,2-dichloroethene
399-1-17A	Quarterly	Uranium
399-1-17B	Semiannually	
399-1-21A	Semiannually	
399-1-21B	Semiannually	

**Latest reported results indicate concentration of uranium in well 399-1-11 has dropped below MCL. Sampling frequency will be adjusted to semiannual.

GROUNDWATER CONTAMINANT TRENDS

This section discusses concentrations of uranium and cis-1,2-dichloroethene in groundwater downgradient of the 300 APT during the reporting period. The distribution of uranium concentration in the 300 Area is shown in Figure 2. Because the plume for cis-1,2-dichloroethene is mostly confined to one well, the distribution concentration would be difficult to display on a map. Trichloroethene and tetrachloroethene are not discussed because none of the wells in the well network had reported concentrations of these constituents of interest at or above MCLs. Since March 1997 the reported concentrations of trichloroethene have been slowly declining, and tetrachloroethene is no longer detected in 300 APT network wells. Appendix A contains all reported results for constituents of interest in 300 APT network wells during the reporting period.

The MCL for uranium (30 µg/L) continued to be exceeded at five wells in the 300 APT well network during the reporting period. The five wells were 399-1-7, -10A, -11, -16A, and –17A. Concentrations of uranium in these wells have generally been decreasing since 1997. Figure 3 is an historical trend plot for uranium in well 399-1-7 and is a good example of the decreasing trend for uranium. Well 399-1-7 also had the highest reported concentration of uranium during the reporting period (70.5 µg/L in a sample collected December 19, 2001).

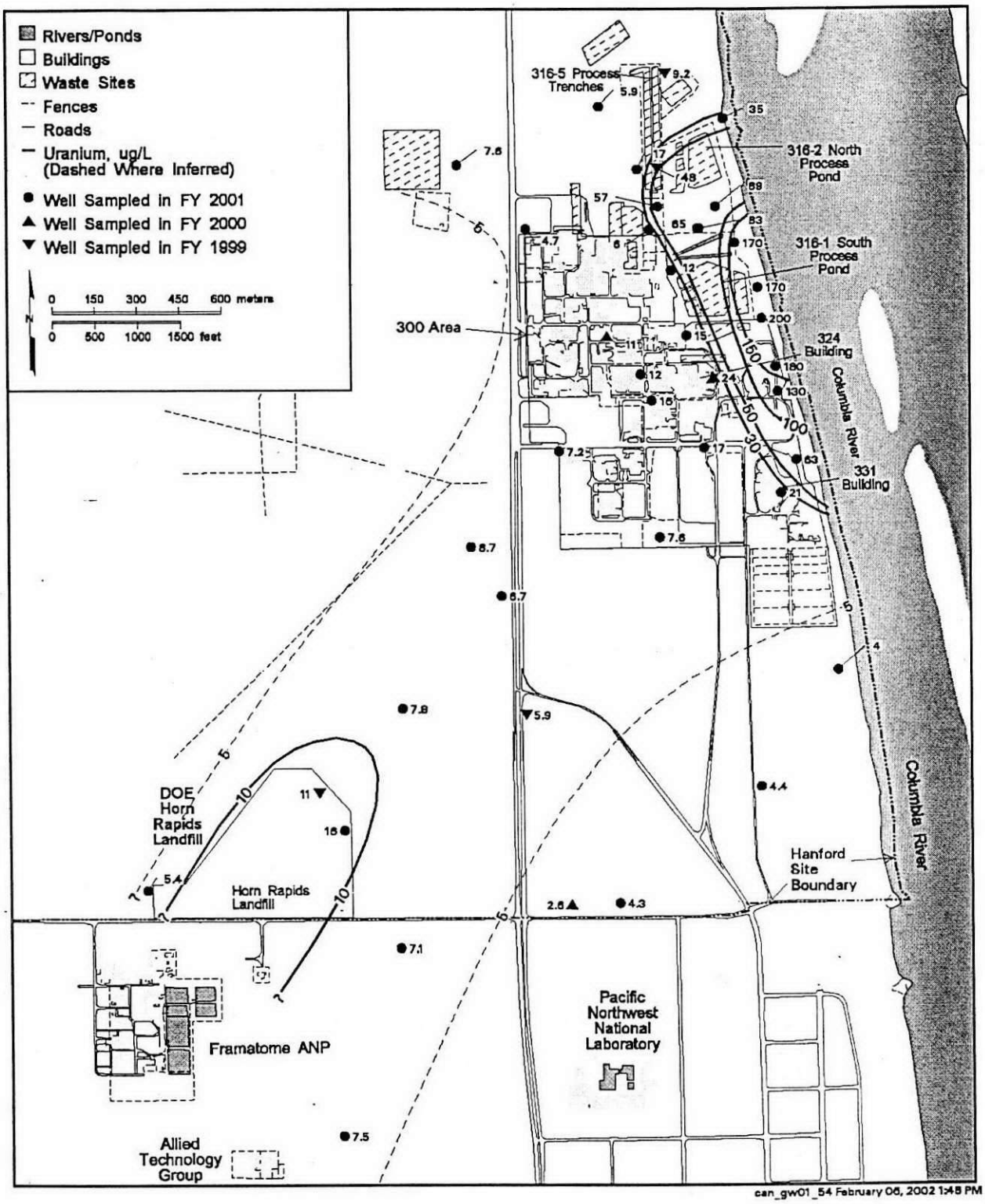

Figure 2. Uranium Concentrations in the 300 and Richland North Areas, Top of Unconfined Aquifer, August to September 2001 (from PNNL-13788).

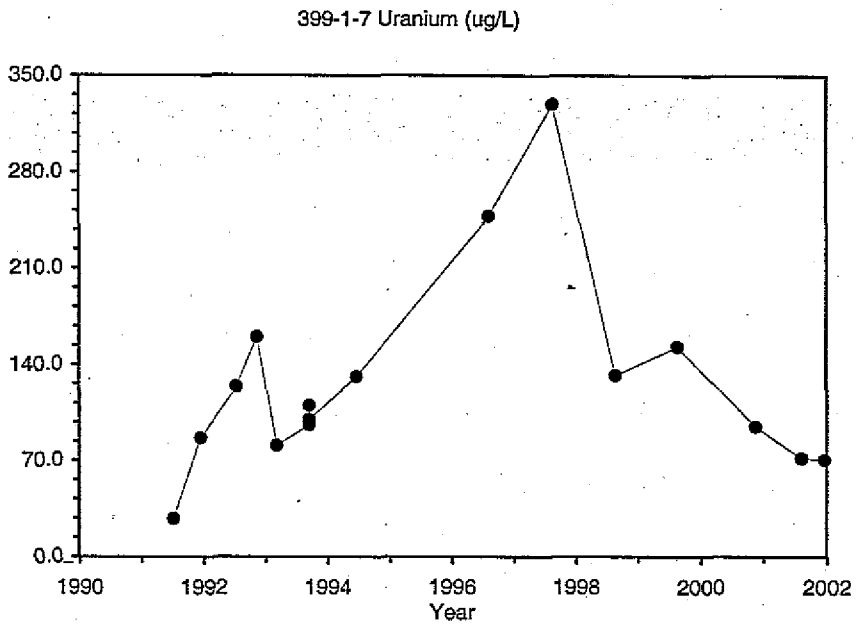

Figure 3. Uranium At Well 399-1-7.

Cis-1,2-dichloroethene (cis-DCE, MCL=70 µg/L) was detected at two wells in the 300 APT network during the reporting period (399-1-16B and 399-1-17B). Both of these wells are screened at the bottom of the unconfined aquifer. The concentration reported at well 399-1-17B is detected at 2.0 µg/L but is only an estimate. The analysis indicates the presence of a compound that meets the identification criteria, but the result was less than the practical quantitation limit but greater than zero. The concentration at 399-1-16B was as high as 150 µg/L (Dec. 17, 2001) during the reporting period, which is consistent with the historical trends for cis-DCE in this well (Figure 4). The overall trend in well 399-1-16B is highly variable (ranging from 100 to 190 µg/L), but has remained in this range since 1997 (i.e., it is neither increasing or decreasing).

CONCLUSIONS

Concentrations of uranium and cis-DCE exceeded applicable concentration limits during the reporting period. Uranium concentrations exceeded the concentration limit (30 µg/L) at five of the six wells screened at the water table in the 300 APT well network. Overall, the general trend for uranium concentration is decreasing. Cis-DCE exceeded the applicable concentration limit (70 µg/L) at only one well, 399-1-16B. The trend is generally stable since 1997.

The Five-Year Review of the Hanford Site 300 Area National Priority List Site (U.S. EPA, 2001) indicated that, in general, the 300 Area cleanups are proceeding in a protective and effective manner. The EPA still considers the cleanup goals and remedy selection decisions in the record of decision (ROD 1996) appropriate at the present time. The results and conclusions

of this semiannual report of groundwater contamination beneath the 300 APT are consistent with the conclusions of the EPA in the Five-Year Review.

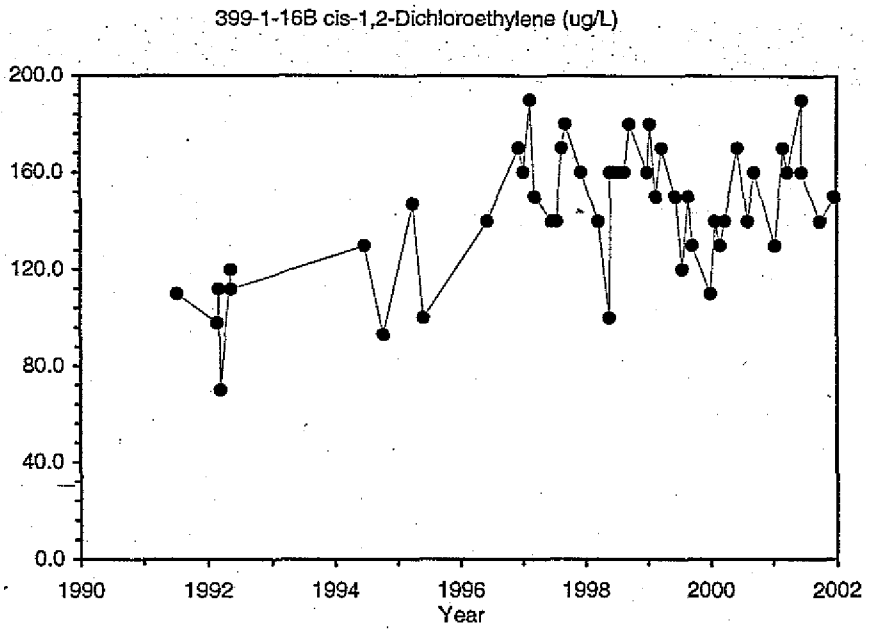

Figure 4. Cis-1,2-Dichloroethene At Well 399-1-16B.

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Appendix A.

Groundwater Monitoring Data for 300 Area Process Trenches, July-December, 2001.

Well	Date	Result	Qualifier
	cis-1,2-Dichloroethylene		
399-1-10A	9/25/2001	0.24	U
399-1-10A	12/19/2001	0.24	U
399-1-10B	12/19/2001	0.24	U
399-1-10B	12/19/2001	0.24	U
399-1-11	12/19/2001	0.24	U
399-1-16A	9/25/2001	0.24	U
399-1-16A	12/17/2001	0.24	U
399-1-16B	9/25/2001	140	D
399-1-16B	12/17/2001	150	D
399-1-17A	9/25/2001	0.24	U
399-1-17A	12/18/2001	0.24	U
399-1-17B	12/18/2001	2	J
399-1-21A	8/29/2001	0.24	U
399-1-21B	12/17/2001	0.24	U
399-1-7	12/19/2001	0.24	U
399-1-8	12/17/2001	0.24	U
	Tetrachloroethene		
399-1-10A	9/25/2001	0.36	U
399-1-10A	12/19/2001	0.36	U
399-1-10B	12/19/2001	0.36	U
399-1-10B	12/19/2001	0.36	U
399-1-11	12/19/2001	0.36	U
399-1-16A	9/25/2001	0.36	U
399-1-16A	12/17/2001	0.36	U
399-1-16B	9/25/2001	0.36	U
399-1-16B	12/17/2001	0.36	U
399-1-17A	9/25/2001	0.36	U
399-1-17A	12/18/2001	0.36	U
399-1-17B	12/18/2001	0.36	U
399-1-21A	8/29/2001	0.36	U
399-1-21B	12/17/2001	0.36	U
399-1-7	12/19/2001	0.36	U
399-1-8	12/17/2001	0.36	U
	Trichloroethene		
399-1-10A	9/25/2001	0.29	U
399-1-10A	12/19/2001	0.29	U
399-1-10B	12/19/2001	0.29	U
399-1-10B	12/19/2001	0.29	U
399-1-11	12/19/2001	0.29	U
399-1-16A	9/25/2001	0.51	J
399-1-16A	12/17/2001	0.53	J
399-1-16B	9/25/2001	2.1	J
399-1-16B	12/17/2001	2.1	J
399-1-17A	9/25/2001	0.52	J
399-1-17A	12/18/2001	0.43	J

Well	Date	Result	Qualifier
399-1-17B	12/18/2001	0.29	U
399-1-21A	8/29/2001	1.4	J
399-1-21B	12/17/2001	0.29	U
399-1-7	12/19/2001	1.3	J
399-1-8	12/17/2001	0.29	U
	Uranium		
399-1-10A	9/25/2001	26.2	
399-1-10A	12/19/2001	31.6	
399-1-10B	12/19/2001	0.041	
399-1-10B	12/19/2001	0.046	
399-1-11	12/19/2001	9.03	
399-1-16A	9/25/2001	69.2	
399-1-16A	12/17/2001	65.5	
399-1-16B	9/25/2001	14.6	
399-1-16B	12/17/2001	13.6	
399-1-17A	9/25/2001	42.8	
399-1-17A	12/18/2001	48.4	Q
399-1-17B	12/18/2001	0.017	Q
399-1-21A	8/29/2001	11.5	
399-1-21B	12/17/2001	0.06	
399-1-7	8/9/2001	71.7	
399-1-7	12/19/2001	70.5	
399-1-8	12/17/2001	3.07	

d = sample diluted for analysis. Result corrected for dilution.
J = concentration estimated
Q = sample associated with quality control data that were out of range
U = below detection limit